

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 005092.00059	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 03/38170	International filing date (day/month/year) 01/12/2003	(Earliest) Priority Date (day/month/year) 02/12/2002
Applicant PROTASIS CORPORATION		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

ELECTROPHORETIC DEVICE COMPRISING SEPARATION CHAMBER, NON-UNIFORM ELECTRODE CHAMBER, AND A POROUS MEMBRANE BETWEEN THEM

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

48

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 03/38170

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

An electrophoretic device comprises a separation chamber and an electrode chamber, which is non-uniform. The electrode chamber includes two or more electrodes or may include an electrode array. Molecular sieve may be included in the separation chamber, and the molecular sieve is operative to shift the location at which a stationary focused band of a charged analyte forms under a given set of focusing process parameters. Such systems are especially suitable for linking up analytical instruments in a hyphenated fashion, particularly where the instruments have differing system parameters.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/38170

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-20, 57-70

Electrophoretic device with separation chamber, non-uniform electrophoresis chamber, and porous membrane between them

2. claims: 21-56, 71-86

Electrophoresis device with sample treatment devices at the inlet and the outlet of the separation chamber

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/38170

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N27/447

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 298 143 A (IVORY CORNELIUS F ET AL) 29 March 1994 (1994-03-29)	1,5-8, 10,11, 17-23, 26, 28-33, 39-53, 55-58, 62-65, 68-75, 83,84
Y	column 10, line 23 - line 60; figure 20 ----- -/--	9,13-16, 59-61, 66,67

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

16 July 2004

Date of mailing of the international search report

26. 07. 2004

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/38170

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/043462 A1 (HUANG ZHENG ET AL) 18 April 2002 (2002-04-18)	21-23, 26,27, 32, 34-46, 50,52, 54-56, 71-84
Y	paragraphs '0052!, '0112!, '0113!, '0144!; claims 15,43; figures 1,2	9,13-16, 59-61, 66,67
X	----- KOEGLER WENDY S ET AL: "Field gradient focusing: A novel method for protein separation" BIOTECHNOLOGY PROGRESS, vol. 12, no. 6, 1996, pages 822-836, XP002277720 ISSN: 8756-7938 abstract; figures 2,7	1,5-8, 10,11, 17-23, 26, 28-33, 39-53, 55-57, 62-65, 68,70
A	----- IVORY C F ET AL: "CONTINUOUS COUNTERACTING CHROMATOGRAPHIC ELECTROPHORESIS" BIOTECHNOLOGY PROGRESS, vol. 6, no. 1, 1990, pages 21-32, XP002277721 ISSN: 8756-7938 figures 1,4,6,10,12	9,13-16, 35-38, 59-61, 77-82
X	----- US 5 582 705 A (LI QINGBO ET AL) 10 December 1996 (1996-12-10) figure 1	21,24, 25, 71-73, 85,86
X	----- EP 1 044 716 A (CAHILL MICHAEL DR ; NORDHEIM ALFRED PROF DR (DE); DRUKIER ANDRZEY DR () 18 October 2000 (2000-10-18) figure 3	21,24, 25, 71-73, 85,86

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/38170

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5298143	A	29-03-1994	US 5200050 A	06-04-1993
US 2002043462	A1	18-04-2002	US 6277258 B1	21-08-2001
US 5582705	A	10-12-1996	EP 1109014 A2	20-06-2001
			EP 0830593 A1	25-03-1998
			WO 9636872 A1	21-11-1996
			US 5741411 A	21-04-1998
			US 5695626 A	09-12-1997
EP 1044716	A	18-10-2000	EP 1044716 A1	18-10-2000